

**AMENDMENTS TO THE CLAIMS:**

Please amend claims 1-7, 9-11 and 13-17 as follows.

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A head tracker system for determining a user's head orientation relative to a datum ~~(22)~~ comprising:

a head mounting ~~(2)~~ for attachment to the user's head;

an optical sensor ~~(12)~~ ~~which in use is~~ located in fixed relation with a known fixed point relative to the head mounting ~~(2)~~;

a plurality of distinguishable markings ~~(18a-18j)~~ each of which ~~when in use is~~ located in fixed relation with a respective known point which is fixed relative to the datum ~~(22)~~;

~~characterised by~~ an optical correlator ~~(26)~~ for optically correlating the optical image from the optical sensor ~~(12)~~ with an optical image representative of at least one of said markings ~~(18a-18j)~~; and

means ~~(28)~~ for determining the orientation of the head mounting using responsive to an the output from the optical correlator ~~when it detects~~ detecting that there is correlation between the images.

2. (Currently Amended) A head tracker system for determining a user's head orientation relative to a datum ~~(22)~~ comprising:

- a head mounting ~~(2)~~ for attachment to the user's head;
- a plurality of distinguishable markings ~~(18a-18j)~~ each of which ~~when in use is~~ located in fixed relation with a respective known point which is fixed relative to the head mounting;
- an optical sensor ~~(12)~~ ~~which in use is~~ located in fixed relation with a known fixed point relative to the datum ~~(22)~~;
- ~~characterised by~~ an optical correlator ~~(26)~~ for optically correlating the optical image from the optical sensor ~~(12)~~ with an optical image representative of at least one of said markings ~~(18a-18j)~~; and
- means ~~(28)~~ for determining the orientation of the head mounting ~~(2)~~ ~~using~~ theresponsive to an output from the optical correlator (26) when it detects ~~detecting~~ that there is correlation between the images.

3. (Currently Amended) A head tracker according to Claim 1, wherein said in ~~which the, or each,~~ distinguishable marking ~~(18a-18j)~~ comprises a spatial pattern.

4. (Currently Amended) A head tracker system according to Claim 1, wherein ~~said in which the, or each,~~ distinguishable marking ~~(18a-18j)~~ is defined in part at least by the colour of the marking.

5. (Currently Amended) A head tracker system according to Claim 1 and further comprising one or more marking generators ~~(18a-18j)~~ for generating the distinguishable markings.

6. (Currently Amended) A head tracker system according to Claim 5 in which the colour of the markings ~~(18a-18j)~~ is defined by the wavelength of the light produced by each marking generator.

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7. (Currently Amended) A head tracker according to Claim 1 in which each marking is a substantially collimated image having an axis ~~(20a-20j)~~ which is predetermined and which passes through said respective known fixed point.

8. (Previously Presented) A head tracker system according to Claim 1 in which the plurality of markings comprises features of the environment around the user.

9. (Currently Amended) A head tracker system according to Claim 1 in which the optical correlator ~~(26)~~ is operable to sequentially, optically correlate the optical image from the optical sensor with an optical image representative of each of the markings.

10. (Currently Amended) A head tracker system according to Claim 1 in which the means ~~(28)~~ for determining the orientation of the head mounting ~~(2)~~ determines the head mounting orientation by determining where within the field of view of the optical sensor a marking is located.

11. (Currently Amended) A head tracker system according to Claim 1 in which the optical sensor ~~(12)~~ comprises a video camera for capturing the optical image and producing an electrical signal representative of it and converting the electrical signal back to an optical image.

12. (Previously Presented) A head tracker system according to Claim 1 and further comprising a second optical sensor located at a second known fixed point relative to the head mounting or to the fixed datum.

13. (Currently Amended) A head tracker system according to Claim 1 in which the optical correlator ~~(26)~~ is a Vander Lugt type correlator.

14. (Currently Amended) A head tracker system according to Claim 1 in which the optical correlator ~~(28)~~ is of the joint transform type.

15. (Currently Amended) A head tracker system for determining a user's head orientation relative to a datum ~~(22)~~ comprising:

a head mounting ~~(2)~~ for attachment to the user's head;

~~characterised by an optical sensor (12) which in use is~~ located at a known point fixed relative to the head mounting ~~(2)~~ and operable to collect optical scene data representative of the user's environment;

an optical correlator ~~(26)~~ for correlating said optical scene data with optical scene data previously captured by said optical sensor to determine the relative movement of the head mounting ~~(2)~~ between the capture of said optical scene data; and

means ~~(28)~~ for determining the orientation of the head mounting from said relative movements.

16. (Currently Amended) A head tracker system according to Claim 15 ~~when used in an aircraft in which~~ wherein the environment comprises at least a part of ~~the~~ an aircraft cockpit.

17. (Currently Amended) A head tracker system according to Claim 15 and further comprising providing one or more visibly distinguishable markings ~~(18a-18j)~~ at respective known points which are fixed relative to the datum ~~(22)~~.